

PURIFICATION OF POLYOLEFIN FEEDSTOCKS USING MULTIPLE ADSORBENTS

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ABSTRACT OF THE INVENTION

Processes using heterogeneous adsorbents are disclosed for purification of olefins to obtain feedstocks suitable for formation of olefin polymers using a metallocene catalyst system. An olefinic process stream, containing small amounts of acetylenic impurities, carbon oxides and/or other organic components which are, typically, impurities in cracked gas, passes through at least two zones containing heterogeneous adsorbents. Adsorption is carried out in an essentially dihydrogen-free atmosphere within the initial zone containing a bed of regenerated adsorbent which has retained a substantial amount of carbon monoxide, to effect selective adsorption of the contained acetylenic contaminants with the adsorbent. An effluent mixture which contains less than about 1 part per million by volume of the acetylenic impurities and an amount of carbon monoxide deleterious to a metallocene catalyst system in formation of olefin polymers is contacted in a second zone with an adsorbent capable of effecting selective adsorption of the contained carbon monoxide, thereby obtaining a feedstock which contains less than about 5 parts per million by volume of carbon monoxide and less than about 1 parts per million by volume of the acetylenic impurities. Advantageously, the loaded bed of adsorbent in the first zone is regenerated in the presence of a reducing gas comprising dihydrogen and containing at least 50 parts per million of carbon monoxide, to effect release of the contained acetylenic impurities from the adsorbent.

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